

Investigate: How well do antacids work?

Antacids (indigestion remedies) help to relieve acid indigestion by neutralising stomach acid. The adverts say how quickly some antacids work. Do some antacids really work faster than others? You are going to plan an investigation to compare how quickly different brands of antacid work.



Wear eye protection.



Take care with acid. Wash it off if you get any on yourself. Do not eat antacid tablets.

Equipment

- four beakers
- a measuring cylinder
- universal indicator solution
- a stirring rod
- a solution of 'stomach acid'
- a universal indicator chart
- a stopwatch
- four different brands of antacid

Planning

- 1 What is the aim of your investigation? Write down the question you are trying to answer.
- 2 Read the information on the antacid packets. How could you test the antacids in the lab instead of using stomach acid? Discuss your ideas.
- 3 How will you know when the antacid has neutralised the acid? How will you measure how long the neutralisation takes? Discuss your ideas.
- 4 Work out whether anything other than the type of antacid may affect your results. If so, these are variables and you must include in your plan some way to keep them the same to make it a fair test.
- 5 Decide what equipment you will need to use and make a list.
- 6 Decide how you will set up your equipment. Draw a labelled diagram.
- 7 Think about how to make your results reliable. How many readings will you take? Write down your decisions.
- 8 Finish your plan. Make sure it says:
 - what you are going to change (the input or independent variable)
 - what you are going to measure or observe (the outcome or dependent variable)
 - what you will keep the same to try to make it a fair test
 - the number of measurements you will take
 - whether you will repeat the measurements, and why
 - how you will keep your investigation safe – take safety precautions.
- 9 Check your plan with your teacher. Before you begin to collect evidence, draw a table for your results with a heading for each column. If you are doing repeat readings, leave room to calculate averages.

Predicting

- 10 Predict which brand will be the most effective cure. You will need to read the information on the packaging to help you with this.
(Hint: the stronger antacids will have the most alkali, but you might expect a powder antacid to work faster than a tablet.)
- 11 Use your scientific knowledge to explain your prediction.